Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
	)	
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz For Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258
	)	
	)	
Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Implementation of WRC-2000; Review of Spectrum and Regulatory Requirements for IMT-2000	)	RM-9920
	)	
	)	
Amendment of the U.S. Table of Frequency Allocations to Designate 2500-2520/ 2670-2690 MHz Frequency Bands for the Mobile-Satellite Service	)	RM-9911

To: The Commission

COMMENTS
OF THE BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN
AND THE STATE OF WISCONSIN EDUCATIONAL COMMUNICATIONS BOARD

The Board of Regents of the University of Wisconsin System ("UWS") and the State of Wisconsin Educational Communications Board ("WECB"), by their counsel, submit the following comments in response to the *Notice of Proposed Rulemaking and Order* in the above-captioned proceeding, FCC 00-455 (released January 5, 2001)("NPRM"). The NPRM is intended to explore various issues relating to the introduction of certain new advanced mobile and fixed services (including Third Generation mobile services, or "3G") in certain frequency bands, including the 2500-2690 MHz band currently allocated for and used by stations operating in the Instructional Television Fixed Service ("ITFS") and the Multichannel Multipoint Distribution Service ("MMDS").

UWS and WECB support and endorse the comments filed by the National ITFS Association in the above-captioned proceeding. UWS and WECB strongly urge the Commission not to abandon its long-

standing commitment to the pervasive and educationally-valuable uses of ITFS by incumbent stations and its recent encouragement of the development of advanced wireless broadband services by ITFS and MDS licensees in the 2500-2690 band in favor of new cell phone services on those frequencies. In reliance on the Commission's *Digital Declaratory Ruling* on MDS/ITFS digital conversion and the recent *Two-Way Order*, UWS and WECB, like other ITFS system licensees, are presently on the brink of developing and implementing high-speed, two-way wireless transmission services, including broadband Internet access, throughout their system.

Interest of UWS and WECB. UWS and WECB hold a total of 40 ITFS licenses. These facilities are located throughout the state and have been used for many years in a successful program of distance learning to deliver vital educational programming and services to many categories of learning communities, spanning the range of geographic, demographic and cultural diversity throughout the State. ITFS programming ranges from full-day high school curricula to college-level courses to after-school staff development and curricular enrichment programs. ITFS programming in the State of Wisconsin today is a major component of what is termed the Wisconsin Idea for education -- a statewide educational concept for providing lifelong learning opportunities for all its citizens. Furthermore, the Wisconsin ITFS system is a relatively mature one which has developed a high level of integration and flexibility so that its facilities can be made available for various other educational programming options, including such users as the State Department of Corrections, other governmental agencies, other educational groups, and various non-profit organizations.

A list of the UWS and WECB ITFS facilities, and their geographic locations throughout the state, is attached to these comments as Exhibit 1. It is important to note that UWS and WECB ITFS facilities at many of these sites are integrated with the facilities of other ITFS licensees in a manner that efficiently maximizes technological flexibility and economies of scale. For example, in Milwaukee, UWS and two other educational entities have co-located their collective 12 channels. These channels are operated in an integrated, coordinated manner that our engineers refer to as a "tapestry of technology" that permits bandwidth to be shared and re-configured as needed for particular applications such as videoconferencing, or even virtual reality applications. As this system achieves digital and two-way

capability, UWS and WECB anticipate implementation of broadband Internet access and interactive educational services throughout its system, including remote rural areas of the state which may otherwise lack high-speed access to the Internet.

Background and Purpose of This NPRM. On November 15, 2000, the Commission staff issued its *Interim Report* on Spectrum Study of the 2500-2690 MHz band for Third Generation (3G) Wireless Systems. That *Interim Report* contained an evaluation of incumbent systems in the bandwidth in question, focusing on nature of use, spectrum usage, geographic deployment, system characteristics, and interference protection standards. The *Report* accurately described the manner in which "the frequency band is in a state of rapid evolution and development by both ITFS and MDS licensees so that they can provide high-speed, two-way access to the Internet." It provides the following evaluation of the future potential of ITFS and MDS systems:

> [t]hese systems will provide a significant opportunity for further competition with cable and digital subscriber line (DSL) services in the provision of broadband services in urban areas and deliver broadband services to rural areas. These systems also will enable ITFS operators to bring a wide variety of broadband services to educational users, often in cooperation with MDS operators in the band.

Interim Report, at 17-18.

The *Interim Report* provides an accurate assessment of the present and future significance of ITFS systems, both in its present educational role and in its potential in relation to broadband rollout and Internet access. The Final Report, to be issued by March 1, 2001, is to focus on issues of system life expectancy, planned replacement systems, and a cost/benefit analysis regarding reallocation and relocation of ITFS to another section of the spectrum. In these Comments, therefore, UWS and WECB will focus primarily on a discussion of the costs to its system (and ITFS in general) of forced relocation and the benefits to the public of permitting ITFS and MDS to remain in their present 2500-2690 bandwidth.

ITFS and the Internet. In the Wisconsin system, our educators and engineers have come to view the ITFS acronym as also signifying "Internet Transmission Facilities for Schools." As the *Interim Report* discussed, the ways in which educators can deploy broadband technology to achieve innovative educational goals for our students and for other residents of the state are highly promising -- Internet-

based curriculum, instructional video-on-demand, virtual reality, data and document exchange, video-conferencing, and wide-area networks. What must be emphasized is that such cutting-edge applications require the type of variable bandwidth arrangements, flexibility, and mobility that only wireless broadband technology can provide.

UWS and WECB believe that government policy analysts who consider the complex issues raised in this proceeding (and in other forums prompted by the demand for spectrum to accommodate 3G services) must recognize that the incumbent ITFS/MDS users of this part of the spectrum are currently in the process of developing wireless technology that is just as advanced as 3G. This is not a question of "new-high-tech 3G" versus "old-low-tech ITFS distance learning." Nor it is a matter of merely relocating ITFS incumbents to another portion of the spectrum.

Rather, as UWS and WECB explain in more detail in these comments, the loss of the 2500-2690 MHz bandwidth may have far greater long-term costs than can presently be anticipated. It may well result in the inability of these systems either to re-establish their existing systems at present levels of efficiency and integration or to develop the promise of advanced wireless technology that could be achieved with broadband wireless. Some of the anticipated problems include:

1. Reallocation of ITFS/MDS frequencies to mobile services would threaten long-established technological alliances and system infrastructure. The UWS/WECB ITFS system is presently so integrated -- both within itself and in relation to other ITFS and MDS licensees -- that moving to new frequencies would, in many ways, be like starting all over again, but without the economies of scale that have been achieved over the past 20 or 30 years.

2. Serious, perhaps insurmountable, problems of ITFS and MDS equipment replacement and manufacturer can be anticipated. No equipment is presently available and the years of anticipated research, development and manufacture mean that actual deployment of ITFS on other frequencies may be delayed indefinitely -- or, at least, too late to realize the competitive promise of this technology. These problems are made worse by the fact that the real costs associated with equipment replacement cannot easily be estimated in advance. Thus, even if the question of who would pay incumbents' reallocation costs were settled (which is not presently the case), those costs could not easily be estimated in advance.

3. Furthermore, the costs involved in ITFS/MDS relocation are not all fixed ones. Given the number and variability of multipoint sites to which UWS/WECB program content is transmitted, it will be nearly impossible to estimate any other costs of relocation with any accuracy.

4. As the NIA and as other ITFS licensees such as the Catholic Television Network have pointed out, the requirements for effective transmission of MDS and ITFS services

> cannot be achieved in frequency allocations higher than 3GHz or through alternatives such as fiber-optics or cable. What is most significant about ITFS wireless Internet is that it is ***wireless***, that it offers the flexibility of wireless technology so that content can be delivered to any site, or many sites, without the infrastructure required for *a wired system.*

The cost side of the required cost-benefit analysis must, therefore, take into account various types of costs reckoned in terms of lost time, lost efforts, and lost opportunity. It must calculate whether the ITFS/MDS industry can ever recoup ***in a timely and cost-effective manner*** either its present infrastructure or its planned future advances or whether its promise of broadband wireless may never be realized. Furthermore, that analysis must take into account costs and benefits that go beyond technological parameters to consider matters of public policy as great, if not greater, in significance than the deployment of the next generation of mobile wireless.

Let Multiple Technologies Bloom. The guiding principles identified in the President's October 13, 2000 *Executive Memorandum* on this subject require, *inter alia*, equitable treatment of incumbent users of spectrum, encouragement of competition, and a technology-neutral approach. The loss of frequencies presently allocated to ITFS/MDS, however, may make it impossible for ITFS incumbents ever to implement fixed broadband wireless. As a practical matter, such a move may eliminate at the starting gate a promising competitor in the broadband race. As Deborah A. Lathen, former Chief of the Cable Systems Bureau, stated in a speech to the Los Angeles public affairs organization "Town Hall":

> "We want to see multiple broadband pipes: cable modems, DSL, wireless, and satellites. The challenge is for us to make sure we are creating a regulatory environment that is technology neutral so we get as many players on the field as possible. . . . To regulate at this juncture would be to say that the market has failed before the market has been given a chance."

Deborah A. Lathen, "The Mind's Eye," Speech, November 9, 1999.

Proponents of reallocating the 2500-2690 MHz band away from ITFS/MDS have either ignored or failed to grapple with the fact that wireless broadband technology is a significant competitor in the national effort to achieve universal high-speed Internet access. ITFS is, perhaps, viewed as an old, minor technology that must give way to the world's need for mobile wireless, a view which is far from accurate. | As the Commission has recognized, the significance of ITFS/MDS lies in their potentiality as well as

their present configuration, and in their potential as competition for other forms of Internet access. Because ITFS and MDS are at the beginning of their FCC-encouraged transition from analog system to digital, two-way, ITFS-based broadband, the present attributes of ITFS/MDS systems do not provide an entirely-accurate paradigm from which its future potential can be assessed. The benefits to society of that future potential -- in terms of increased access, promotion of competition and efficiencies, and in the realization of important educational, social, and civic goals - must weigh heavily in any cost/benefit analysis.

Real, potential, and estimated costs. Any determination of the actual and potential costs of reallocation and relocation of ITFS presents some of the same analytical problems as the above assessment of the present and future aspects of its benefits. Relocation of ITFS and MDS facilities to other spectrum would not only dislocate present operations, entailing costs and technological problems that are difficult, if not impossible, to estimate at present. A greater problem, with enormous and probably incalculable costs, confronts the policy analyst who tries to determine the costs associated with the disruption (and, very likely) derailment of future plans for advanced communications technology that ITFS and MDS licensees are in the process of rolling out.

Education of students and other communities of learners should not be locked into the receive sites that presently exist or be limited by current technology applications. If ITFS/MDS incumbents were to be moved to another frequency band, the guiding principles of equity, technological neutrality, and competition would incur financial and social costs far greater than just the costs of disrupting and dislocating the present system's infrastructure.

The "Last Mile" to the Internet. A final point that cannot and should not be overlooked is that public policy must accord at least as much priority to bridging the digital divide here in the United States as it does to providing world-wide cell phone compatibility. Inner city neighborhoods and residents of rural and other remote areas of this country do not today have ready access to DSL or cable modem services. ITFS/MDS wireless broadband, which is already in place in many such Internet-underserved areas, can be effectively deployed to reach areas and populations that might otherwise be left behind.

The Satellite Industry Association, in its Petition for Rulemaking, simply ignored the ITFS incumbents on the frequencies they asked the |Commission to allocate to them (and which, in its Order in this proceeding, the Commission has denied.). This seeming oversight was particularly glaring, inasmuch as the SIA claimed the ability to serve persons in rural, remote, and underserved areas. This, however, is precisely the population that ITFS licensees are uniquely positioned to serve, and to which |ITFS licensees will be able to bring wireless broadband services so long as this spectrum is not re-allocated away from them. Congress has directed the Commission to promote consumer access to broadband data services and both Congress and the Commission have recognized that such access is essential in every classroom in America. Educational institutions, particularly those with existing ITFS infrastructure like UWS and WECB, are the best and most logical means for reaching those American children who lack access to the Internet. An ITFS licensee can bring wireless broadband and, with it, Internet access and the tools for interactive learning and data transmission, directly to the consumer in homes, small businesses (including home offices), and schools. ITFS systems are perfectly placed to provide just the type of Internet access that Congress envisioned -- that critical "last mile" to the consumer and to the classroom door.

Relocation of ITFS to other frequencies, in the face of the costs, technological disruption, delays in deployment, and uncertainties that will result, would be like placing a roadblock in the middle of that last mile. Such a result is not justifiable, either as a matter of efficient deployment of advanced technology or as a matter of broader public policy.

Conclusion. For the above reasons, UWS and WECB respectfully urge the Commission to focus its attention on the future benefits of ITFS/MDS advanced technologies and on the very real, if presently incalculable, costs of delaying deployment of that technology. The present and future benefits of broadband wireless access for students and consumers in underserved communities must not be misunderstood or disregarded, for if not assessed in terms of their future benefits and costs, those benefits may be forever lost.

Respectfully submitted,

Board of Regents of the University of
Wisconsin System and The State of Wisconsin
Educational Communications Board

By:_____

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EXHIBIT 1

STATE OF WISCONSIN EDUCATIONAL COMMUNICATIONS BOARD ITFS LICENSES

ITFS	MADISON	WHR626	B1-4
ITFS	JANESVILLE	WLX285	A1& 3
ITFS	PLATTEVILLE	WHR630	B1-2
ITFS	LACROSSE	WHR576	A1-2
ITFS	CHILTON	WHR591	A1-4
ITFS	RIPON	WLX301	G3
ITFS	GREEN BAY	WHR632	C1-4
ITFS	OCONTO FALLS	WLX302	G4
ITFS	WAUSAU	WHR580	A1-4
ITFS	MILLADORE	WLX382	C2
ITFS	BRIGHTON	WLX346	C1-4
ITFS	WEYERHAEUSER	WHR232	C1-2
ITFS	DULUTH	WHR627	B1
ITFS	EAU CLAIRE	WHR648	A1-2
ITFS	HOLCOMBE	WLX641	C4
ITFS-STL	GRANTON	WLX341	B4
ITFS-STL	LOYAL	WLX347	B2
ITFS-STL	SPENCER	WLX348	B1
ITFS-STL	STRATFORD	WLX349	B3
ITFS-STL	STEVENS POINT	WLX373	C1
ITFS-STL	FOND DU LAC	WLX274	G4
ITFS-STL	APPLETON	WHR786	D1-2
ITFS-STL	OSHKOSH	WNC401	D3
ITFS-STL	OSHKOSH	WLX342	D2
ITFS-STL	EAU CLAIRE	WLX366	D2
ITFS-STL	EAU CLAIRE	WHR979	D4
ITFS-STL	GREEN BAY	WHR938	D1
ITFS-STL	GREEN BAY	WLX208	D2
ITFS-STL	JANESVILLE	WLX284	A2 & 4
ITFS-STL	LA CROSSE	WHR935	D4

ITFS-STL	LA CROSSE	WHR936	D1
ITFS-STL	MADISON	WHR906	C4
ITFS-STL	MADISON	WHR907	C3
ITFS-STL	PLATTEVILLE	WHR860	D1
ITFS-STL	FENNIMORE	WHR855	D4
ITFS-STL	SUPERIOR	WLX258	C1
ITFS-STL	RICE LAKE	WLX239	C4
ITFS-STL	LADYSMITH	WLX233	C4
ITFS-STL	WAUSAU	WHR799	D1-4

UNIVERSITY OF WISCONSIN ITFS LICENSES

ITFS	MILWAUKEE	WDG-56	D1-4